

Lab 3 - ARP, CDP, Ping & Telnet

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The physical topology is shown in Figure 16–6.

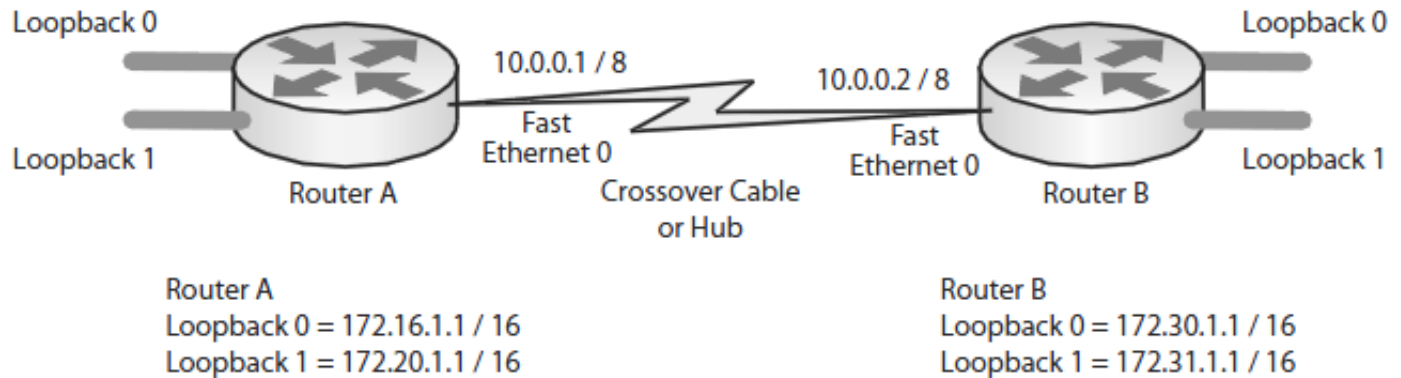


Figure 16–6: ARP, CDP, and Telnet lab

Lab exercise

Your task is to configure the network in Figure 16–6 to check for an ARP entry, CDP neighbor, and to test the ping command and the telnet command. Please feel free to try the lab without following the lab walk-through section.

Purpose

This lab explores some TCP and CDP fundamentals. ARP issues are very common and the capacity to check ARP entries will be very useful to you in your career as a Cisco engineer.

Lab objectives

1. Use the IP addressing scheme depicted in Figure 16–6. We are using Ethernet interfaces connected by a crossover cable or a switch for this lab.
2. Set telnet access for the router to use the local login permissions of username “banbury” and the password “ccna”.
3. Configure the “enable password” to be “cisco”.
4. Check the ARP entry on Router A. Ping Router B and check the ARP entry again.
5. Check CDP neighbor details.
6. Telnet from Router A to Router B.

Lab walk-through

1. To set the IP addresses on an interface you will need to do the following:

```
Router#config t
```

```
Router(config)#hostname RouterA
```

```
RouterA(config)#interface fastethernet 0
RouterA(config-if)#ip address 10.0.0.1 255.0.0.0
RouterA(config-if)#no shutdown
RouterA(config-if)#interface loopback 0
RouterA(config-if)#ip address 172.16.1.1 255.255.0.0
RouterA(config-if)#interface loopback 1
RouterA(config-if)#ip address 172.20.1.1 255.255.0.0
RouterA(config-if)# ^ Z
RouterA#
```

Router B:

```
Router#config t
Router(config)#hostname RouterB
RouterB(config)#
RouterB(config)#interface fastethernet 0
RouterB(config-if)#ip address 10.0.0.2 255.0.0.0
RouterB(config-if)#no shutdown
RouterB(config-if)#interface loopback 0
RouterB(config-if)#ip address 172.30.1.1 255.255.0.0
RouterB(config-if)#interface loopback 1
RouterB(config-if)#ip address 172.31.1.1 255.255.0.0
RouterB(config-if)# ^ Z
RouterB#
```

2. To set telnet access, you need to configure the VTY lines to allow telnet access. To do this, type (from configuration mode):

```
RouterA(config)#line vty 0 4 « Enters the VTY line configuration
RouterA(config-line)#login local « This will use local usernames
and passwords for telnet access
RouterA(config-line)#exit « Exit the VTY config mode
RouterA(config)#username banbury password ccna « Creates username
and password for telnet access (login local)
```

Router B:

```
RouterB(config)#line vty 0 4
```

```
RouterB(config-line)#login local
```

```
RouterB(config-line)#exit
```

```
RouterB(config)#username banbury password ccna
```

3. To set the “enable password” do the following:

```
RouterA(config)#enable secret cisco « Sets the “enable password”  
(encrypted)
```

Router B:

```
RouterB(config)#enable secret cisco
```

4. To configure a default route, there is one simple step (from configuration mode):

```
RouterA(config)#ip route 0.0.0.0 0.0.0.0 fastethernet 0 « For all
```

unknown addresses send the packet out of Ethernet 0

Router B:

```
RouterB(config)#ip route 0.0.0.0 0.0.0.0 fastethernet 0
```

5. To test the connection, you will need to first check that the link is up. To do this, use the “show interface” command (see below):

Make sure that Ethernet 0 is up and line protocol is up.

```
RouterA#show interface fastethernet 0
```

Ethernet0 is up, line protocol is up

Hardware is Lance, address is 0000.0c3d.d469 (bia 0000.0c3d.d469)

Internet address is 10.0.0.1/8

MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec,

reliability 255/255, txload 1/255, rxload 1/255

Encapsulation ARPA, loopback not set

Router B:

```
RouterB#show interface fastethernet 0
```

Next, ping your neighbor's Ethernet interface: this will test if the link is OK:

```
RouterA#ping 10.0.0.2
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:

.!!!! « **The first ping failed while the ARP reply came back from router A**

Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/1 ms.

RouterA#show arp

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
----------	---------	-----------	---------------	------	-----------

Internet	10.0.0.2	0	0050.5460.f1f8	ARPA	Ethernet0
----------	----------	---	----------------	------	-----------

Internet	10.0.0.1	-	0010.7b80.63a3	ARPA	Ethernet0
----------	----------	---	----------------	------	-----------

RouterA#

Router B:

RouterB#ping 10.0.0.1

Your hardware address will obviously be different from the one on my routers!

6. To test CDP, we simply need to enter the “show cdp neighbor” command. Bear in mind that the spelling is US English and that you will have a different output, depending upon what device you are connected to.

RouterA#show cdp neighbor

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge

S - Switch, H - Host, I - IGMP, r - Repeater

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port ID
-----------	---------------	---------	------------	----------	---------

RouterB	Eth 0	172	R	2500	Eth 0
---------	-------	-----	---	------	-------

RouterB	Ser 0	172	R	2500	Ser 0
---------	-------	-----	---	------	-------

RouterA#

7. Finally, telnet from Router A to Router B.

RouterA#telnet 10.0.0.2

Router B:

RouterB#telnet 10.0.0.1



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